OnCommand™ Troubleshooting Guide

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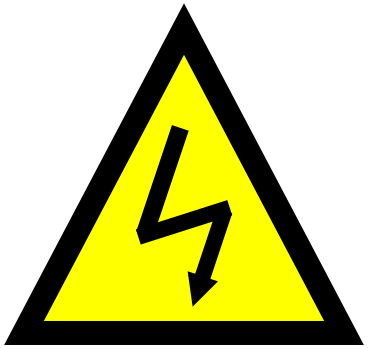
Safety Precautions



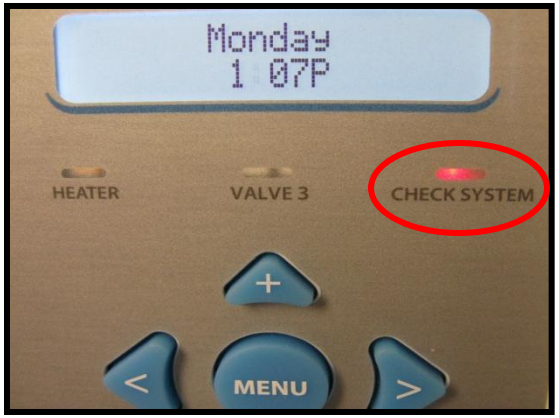
Warning

High Voltage Electrocution Hazard

Hazardous voltage can shock, burn, cause serious injury and or death. To reduce the risk of electrocution and or electric shock hazards:

- Only qualified technicians should remove the panel
- Replace damaged wiring immediately
- Insure panel is properly grounded and bonded

Overview



When the “check system” light is illuminated, the first step should always be to determine what error code is listed under the Default Menu by pressing the right arrow key until the error code(s) are displayed.

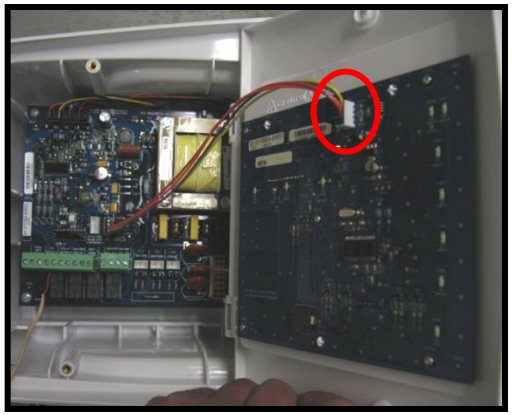
However, additional detailed error codes may also be available under the Diagnostic Menu, so be sure to check this menu as well.

Throughout this guide, we will list the error codes as they are shown in the Default Menu.

Overview

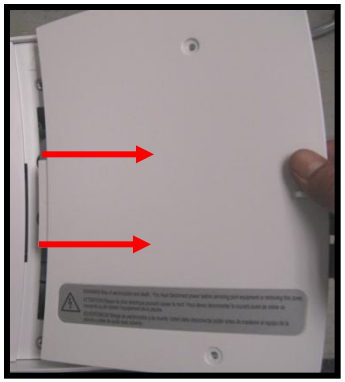
To remove the left side display panel

Remove the two screws and open the door to access the wire harness connecting the display panel to the integrated control board. Next, disconnect the harness from the display board and remove the door from the hinges.



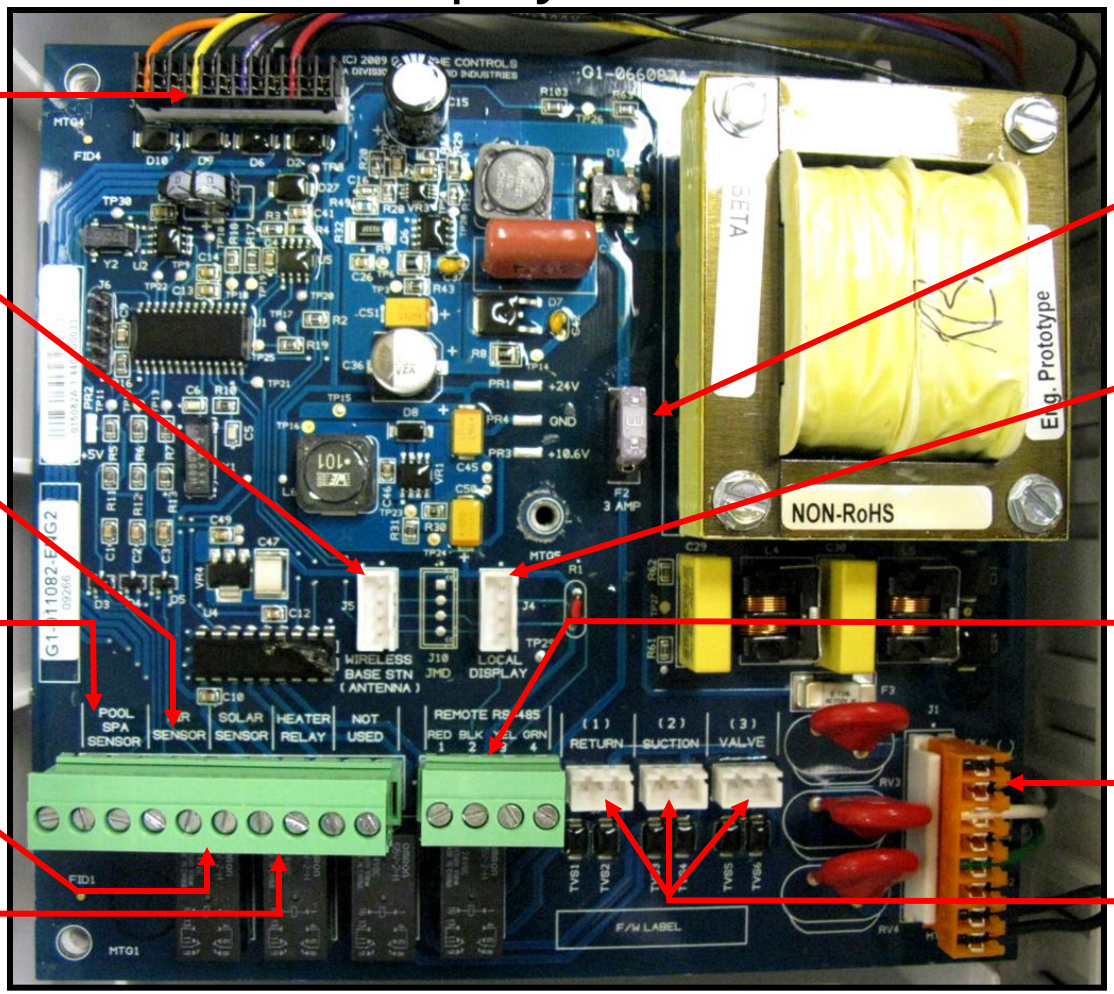
To remove the right side panel

Remove the two screws and open the door. Next, slide the door towards the right to remove.



Overview

Left Side - Display Panel Removed



24 VDC voltage to relays

Wireless Base Station (antenna) connection

Air temperature sensor connection

Pool/ Spa water temperature sensor connection

Solar temperature sensor connection

Low voltage Heater relay connection

3 Amp fuse for valves

Local Display connection

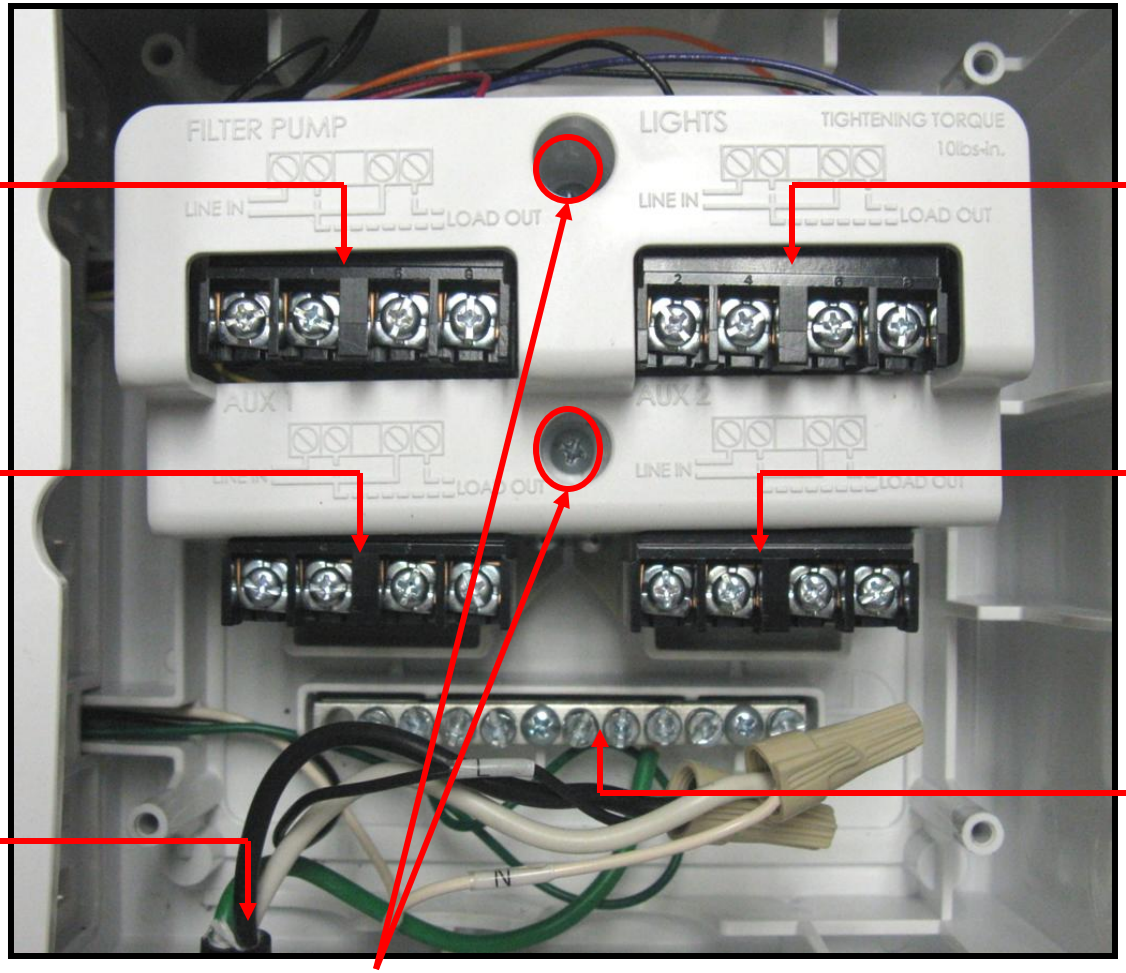
Variable Speed Pump & External Chlorinator connection

Incoming Voltage

Valve Actuator connections

Overview

Right Side - Panel Removed



Filter Pump Relay

Lights Relay

Auxiliary 1 Relay

Auxiliary 2 Relay

120 or 240 VAC
Incoming Power

Ground Bus Bar

Note: Remove screws (2) holding relay cover in place to access low voltage coil of relays.

Software Troubleshooting

One of the most important parts of troubleshooting a control system is knowing what the system can do and why it is doing something. Below are some examples of how the system operates in different situations. These are the most common, but you should thoroughly familiarize yourself with the installation and owner's manual to better understand the OnCommand's operating rules.

1. If the Filter Pump is configured as a two-speed pump, the system will prevent the Low Speed Relay from activating at the same time as the filter pump relay. The auxiliary button that was programmed to function as “filter low speed” will now become inactive. The high and low speed are now toggled by pressing the filter button, first time=high, second time=low, third time=off.

2. Any auxiliary relay that is “Interlocked” will not activate unless the system is in Pool Mode and the Filter Pump Relay has been activated for at least three (3) minutes.

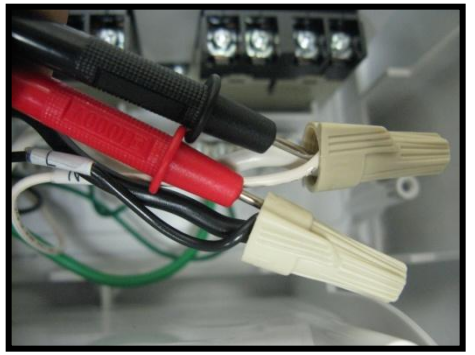
3. Certain features or devices have to be configured in the system so that the OnCommand knows they exist, otherwise, they will not operate. Example: If a heater is not “enabled”, a call for heat will not be generated, thus the heater relay will not close.

4. If an Aqua Rite or other external chlorinator is not wired to OnCommand, the option for chlorinator configuration will not be present in the Configuration Menu.

Local Display Blank/No Lights

Step A

Verify 115-120 or 220-240 Volts AC incoming voltage on white and black wires located on the right side.

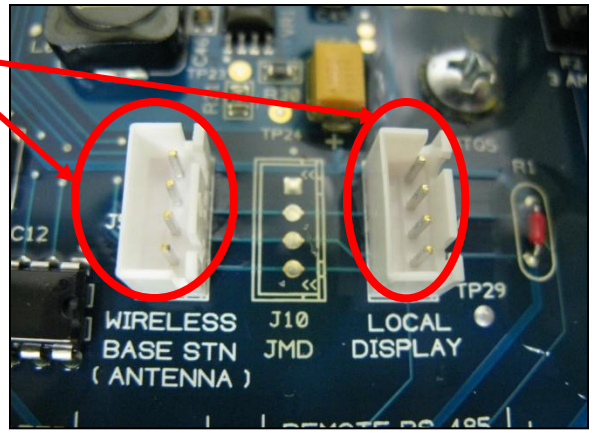


If no voltage is measured, check connection from breaker and that breaker is turned on. Also verify line in voltage to panel from main branch. Correct if necessary and go to Step B.

Blank local display

Step B

Unplug bus strip for remote display as well as the wireless antenna (base station) connector. Shut the system down and power back up. If the display returns, plug each connector back in one at a time and see if it affects the display. Repair or replace any device or device wiring that affects the display. If not, go to Step C.

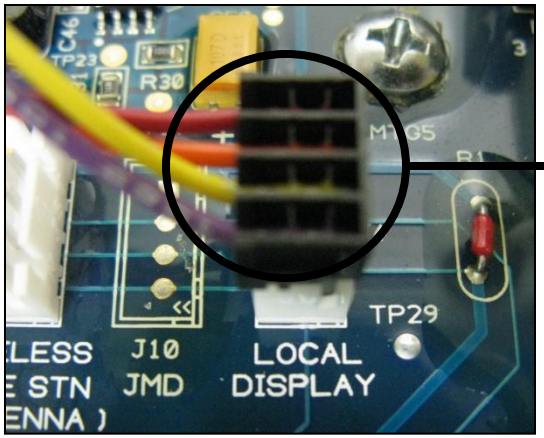


HAYWARD

Local Display Blank/No Lights

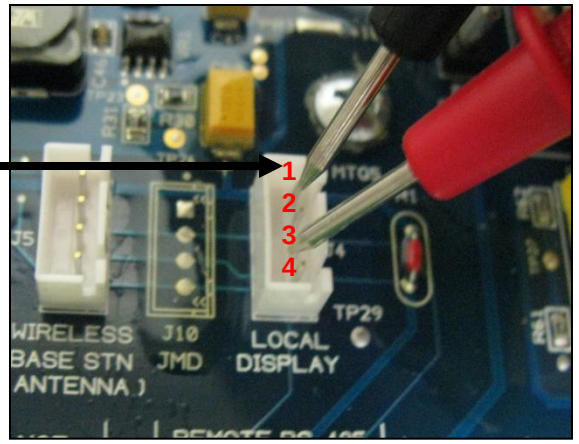
Unplug local display harness.

Step C



Measure for 9-10 Volts DC across pins 1 and 3 (red and yellow wires).

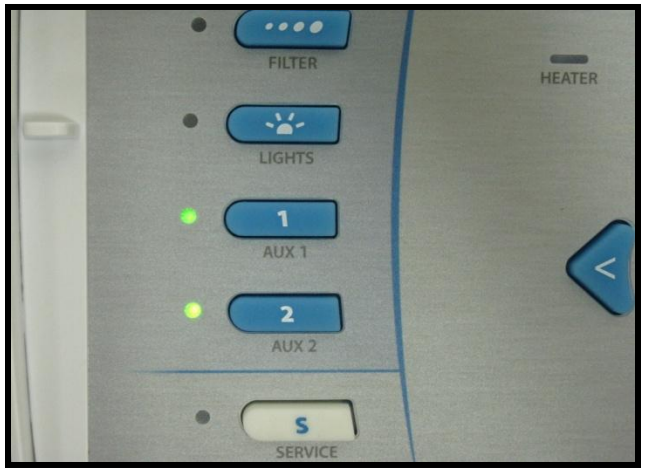
Step D



No voltage, replace PCB, voltage OK replace local display.

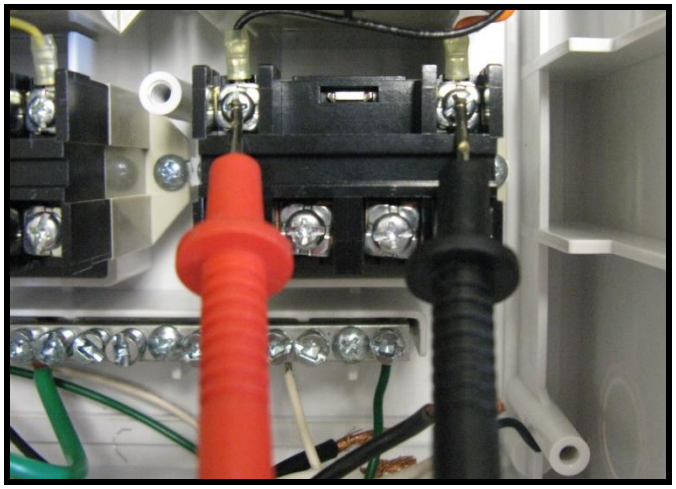
Relay Not Working

Step E



Verify the relay button is on and the relay LED is lit on the local display.

Step F



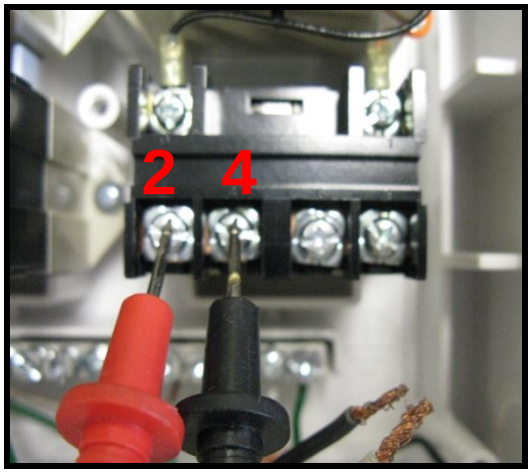
Check for 18-24 VDC at the relay coil. If present, go to next page.

If no voltage is present, check the coil wire connections. If OK, replace the Main PCB.

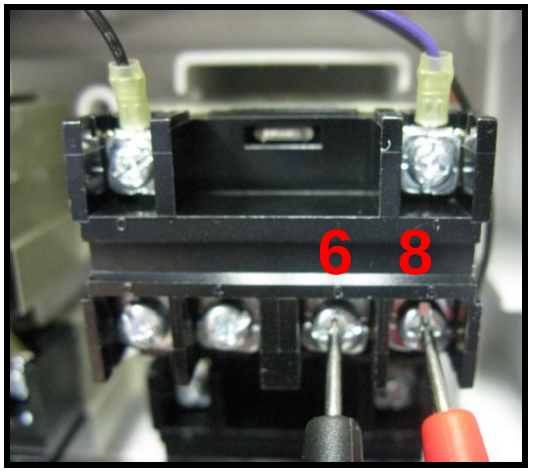
Relay Not Working

Turn off circuit breaker supplying line voltage to relay and remove the Line and Load wiring.

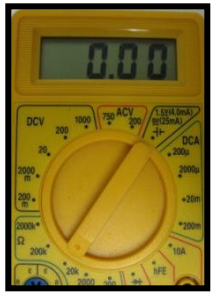
Next, make sure relay is ON and check for continuity between terminals 2 & 4 and 6 & 8.

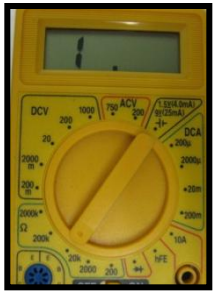


If continuity exists, the relay is working and the issue is in the wiring of, or the equipment itself.



If no continuity exists, replace the relay.



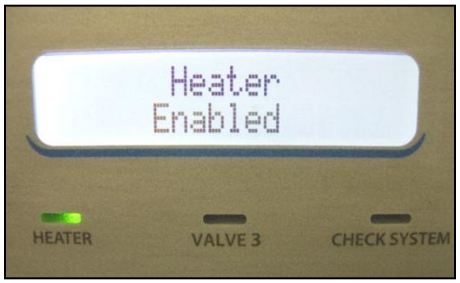


Heater Not Working

Note: Heater must be configured for remote control operation according to the manufacturer's instructions.

Verify Heater is enabled in the Configuration Menu.

Step G

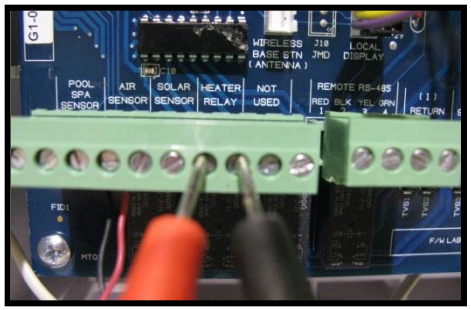


Verify the temperature set point is at least 1º higher than the current water temperature and the Heater LED is ON.

Step H

Remove the remote control communication wiring that connect OnCommand with the heater and measure continuity between terminals 7&8.

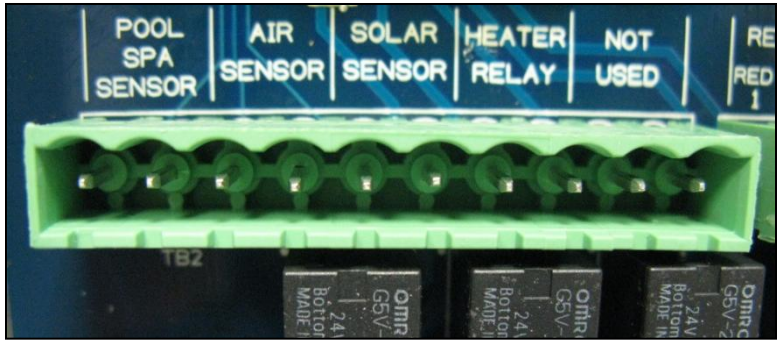
Step I

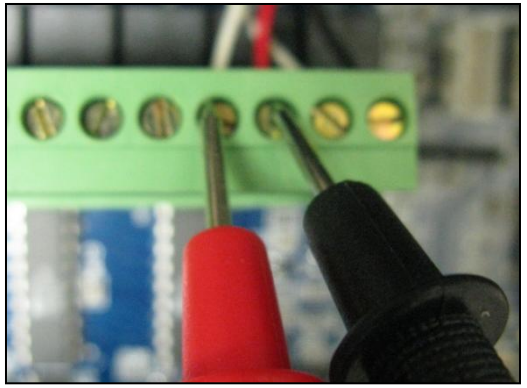


If continuity exists, the control is working and the problem is in the wiring of, or the heater itself. Otherwise, replace the main PCB.

Troubleshooting Temperature Sensors

Place the control in Service mode. Then remove the terminal strip from PCB and measure resistance across terminals of the Pool/Spa, Air, or Solar sensor.





Match the measured resistance value with the temperature chart on Page 13.

If the measured value is 0.00, replace the sensor.

If the measured value is open or infinity, check the sensor wiring for damage. If OK, replace the sensor.

Temperature vs. Resistance Chart

°F	Ohms	°F	Ohms	°F	Ohms	°F	Ohms
1	82,719	41	25,391	81	9,076	121	3,679
2	80,142	42	24,704	82	8,861	122	3,602
3	77,656	43	24,037	83	8,651	123	3,527
4	75,255	44	23,391	84	8,447	124	3,454
5	72,937	45	22,764	85	8,249	125	3,382
6	70,698	46	22,156	86	8,056	126	3,312
7	68,535	47	21,566	87	7,867	127	3,244
8	66,447	48	20,993	88	7,684	128	3,177
9	64,428	49	20,438	89	7,506	129	3,112
10	62,479	50	19,900	90	7,333	130	3,049
11	60,595	51	19,377	91	7,164	131	2,987
12	58,774	52	18,870	92	6,999	132	2,926
13	57,014	53	18,377	93	6,839	133	2,867
14	55,313	54	17,899	94	6,683	134	2,809
15	53,669	55	17,435	95	6,530	135	2,752
16	52,078	56	16,985	96	6,382	136	2,697
17	50,541	57	16,548	97	6,238	137	2,643
18	49,054	58	16,123	98	6,097	138	2,591
19	47,616	59	15,711	99	5,960	139	2,539
20	46,225	60	15,310	100	5,827	140	2,489
21	44,879	61	14,921	101	5,697	141	2,440
22	43,577	62	14,543	102	5,570	142	2,392
23	42,318	63	14,176	103	5,446	143	2,345
24	41,099	64	13,820	104	5,326	144	2,299
25	39,919	65	13,473	105	5,208	145	2,254
26	38,777	66	13,136	106	5,094	146	2,210
27	37,671	67	12,809	107	4,982	147	2,167
28	36,601	68	12,491	108	4,873	148	2,125
29	35,565	69	12,182	109	4,767	149	2,084
30	34,561	70	11,882	110	4,664	150	2,044
31	33,590	71	11,589	111	4,563	151	2,005
32	32,648	72	11,305	112	4,464	152	1,966
33	31,737	73	11,029	113	4,368	153	1,929
34	30,853	74	10,761	114	4,274	154	1,892
35	29,998	75	10,500	115	4,183	155	1,856
36	29,169	76	10,246	116	4,094	156	1,821
37	28,365	77	9,999	117	4,007	157	1,787
38	27,587	78	9,758	118	3,922	158	1,753
39	26,832	79	9,525	119	3,839	159	1,720
40	26,100	80	9,297	120	3,758	160	1,688

Additional “Check System” Errors

Note: If Variable Speed Pump is not being used, change Filter Pump type in the Configuration Menu to remove these error codes.

Below is a list of additional “Check System” error codes which relate to the OnCommand’s operation with Hayward’s TriStar Energy Solution™ Variable Speed Pump & Control:

- Pool Bridge Comm
- Pool VSC Comm
- Pool VSC Err:xx
- Spa Bridge Comm
- Spa VSC Comm
- Spa VSC Err: xx

Please refer to the pump service manual for detailed troubleshooting.

Additional “Check System” Errors

Below is a list of additional “Check System” error codes which relate to the OnCommand’s operation of an externally mounted Aqua Rite:

- Chlorinator Off Test Salt Level
- Chlorinator Off High Salt / Amps
- Chlorinator Off Freeze Protect
- Chlorinator Off PCB Error
- Chlorinator Off Solar Turn on Delay
- Ext. Chlorinator Comm. Error
- Chlorinator Off Low Volts

Troubleshooting for each error code is shown on the following pages.

Check System Light On
Chlorinator Off - Test Salt Level Message

Before operation, the Aqua Rite must be configured for the chlorinator cell that will be used. "t-15" is the factory default. If the incorrect cell is chosen the salt level, amperage, and voltage will not be correct and the system will turn the chlorinator off.

Slide the Main Switch to the "Auto" position.

Step J

Push the diagnostic button until "t-15, t-9, t-5 or t-3" appears on the display.

Step K

To switch Cell Type, cycle Main Switch from AUTO → Super Chlorinate → AUTO.

Step L

Maximum Current (Amps) before shutdown

T-Cell 3: 5.50	**T Cell 9: 10.00**
T-Cell 5: 6.75	**T Cell 15: 10.00**

HAYWARD

Check System Light On
Chlorinator Off - High Salt/Amps Error Message

Step M Test the salt level in the pool using a suitable tester. Be sure the tester has been calibrated and is clean. Pool water will have to be removed and fresh water added to reduce the last level to the 3200 PPM level if found to be higher.

Step N Check to make sure system is configured for correct model cell. (Page 16)

Step O Has system been switched over to Spa and now gives this fault? High water temperatures, such as in Spa, combined with salt levels in the higher ranges and smaller bodies of water can possibly cause this fault. Verify this by switching back to pool for 10 minutes without a fault or by setting the chlorinator to off (zero percent) in spa mode and then running in spa without a fault. If a nuisance, the salt level will have to be reduced to the lower ranges.

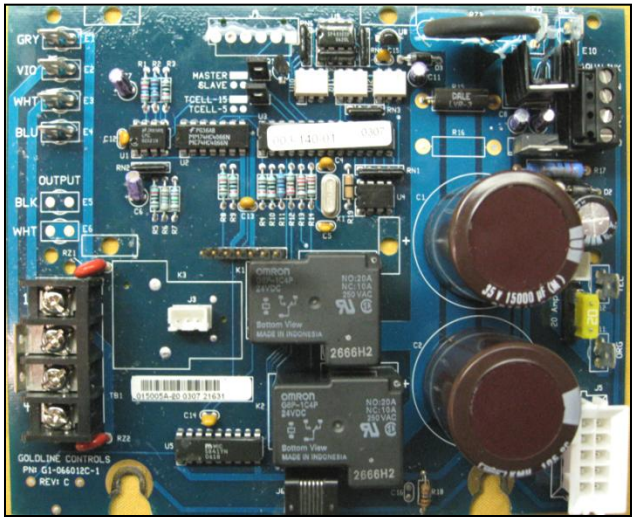
Step P Remove and clean cell per the Goldline cleaning instructions. Be sure to 'reset' the average salt by following the instructions in the Aqua Rite Installation Manual. Replace cell if message is still displayed after cleaning.

Check System Light On
Chlorinator Off – Freeze Protect

OnCommand will turn the chlorinator off when the air temperature drops below the air temperature set-point (42-33˚ F). This is normal operation. If the ambient air temperature is above the set-point, check to make sure the air temperature sensor is plugged in and not defective (Page 12).

Check System Light On
Chlorinator Off – PCB Error

PCB error message indicates an internal fault with the PCB of the AquaRite. Replacement of the AquaRite PCB is the solution.



Check System Light On
Chlorinator Off – Solar Turn on Delay

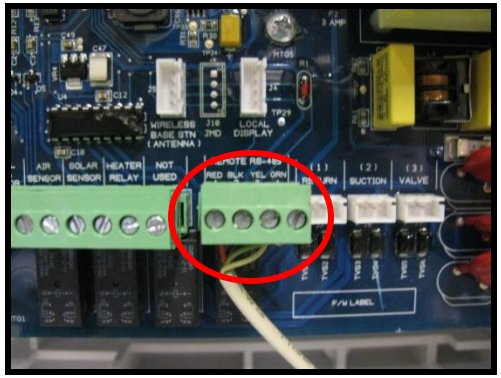
OnCommand has turned the chlorinator off while the actuators turn the valves for solar heat. This is normal operation. After three minutes, the chlorinator will continue to operate. If solar heat is not an option, make sure to disable Solar in the Configuration Menu of the OnCommand.

Check System Light On
Ext. Chlorinator Comm. Error

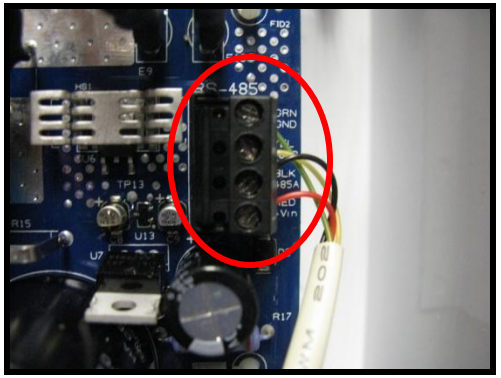
Make sure the external AquaRite is powered up. Next, verify communication wiring connections from chlorinator to OnCommand PCB. The wire connections should be identical from the OnCommand to the AquaRite (1 to 1, 2 to 2, 3 to 3, 4 to 4). The AquaRite “remotely controlled” LED should be illuminated if properly connected.

If error code is still displayed, verify the continuity (ohms) of each wire. If open, replace the communication wiring.

OnCommand

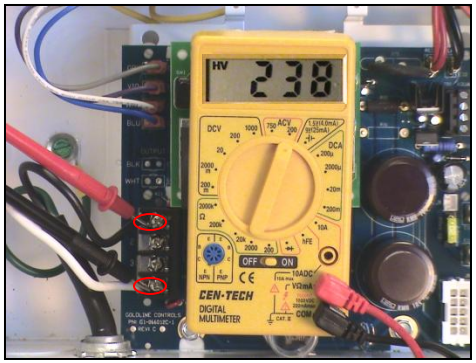


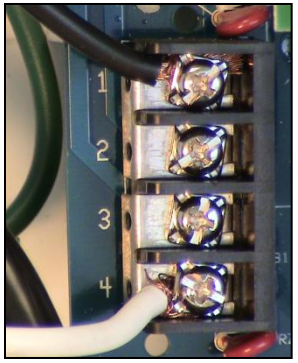
AquaRite

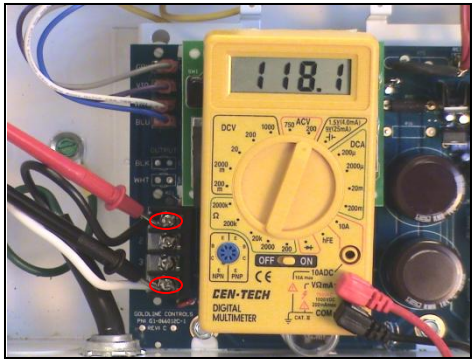


Check System Light On
Chlorinator Off - Low Volts

Verify 220-240 VAC or 115-125 VAC at input terminal TB1.



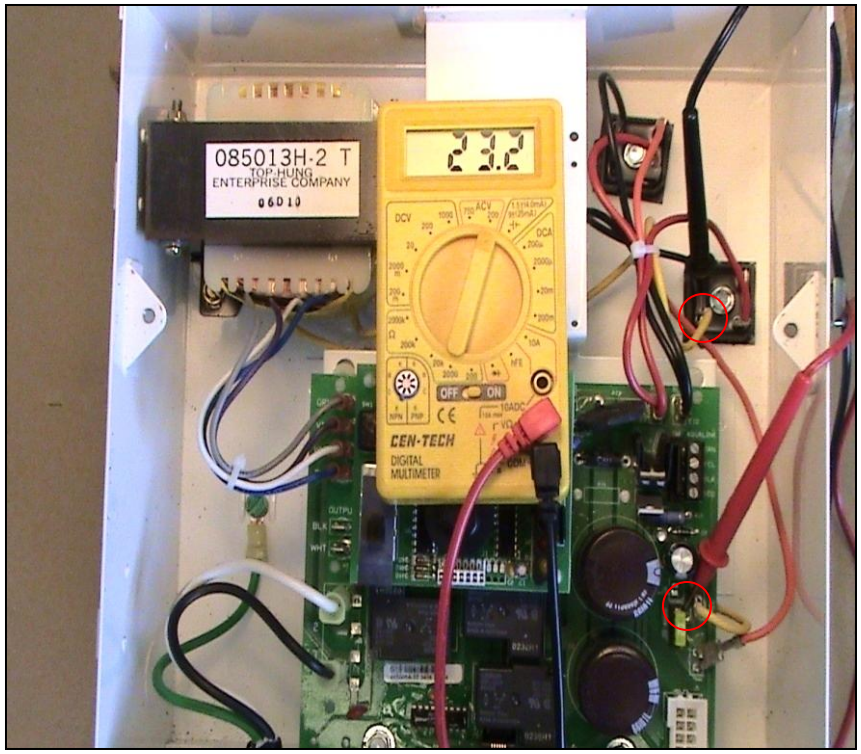




If voltage is good, go to step Q.
If no voltage, check to see that breaker and/or time clock are not off.
Check input jumpers for correct position.
220-240 VAC: jumpers on 2 & 3 (factory default)
115-125 VAC: jumpers on 1 & 2 and 3 & 4

Step Q

Verify 20-24 VAC between yellow wires

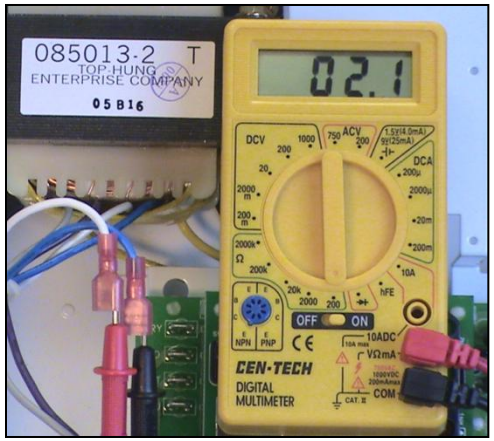


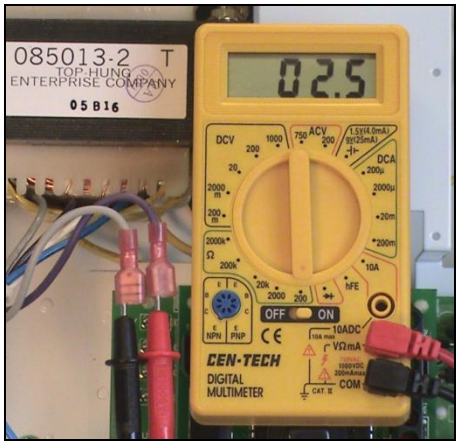
If no voltage go to step R.
If voltage is good go to step S.

Check System Light On
Chlorinator Off - Low Volts

Shut off power to the control box. Disconnect the blue, white, gray and violet wires from the main board and measure the following:

Step R



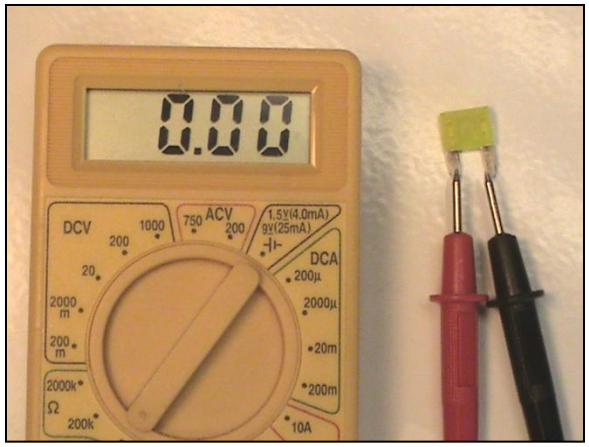


Insert probes and measure resistance between the Blue & White wires and the Violet & Gray wires. The readings should be 2.0- 2.9 Ohms.

If the readings of either of the two measurements are not 2.0 – 2.9 Ohms, the transformer is faulty and should be replaced. If measurements are OK, go to step S.

Test for continuity of 20 amp slow blow fuse

Step S

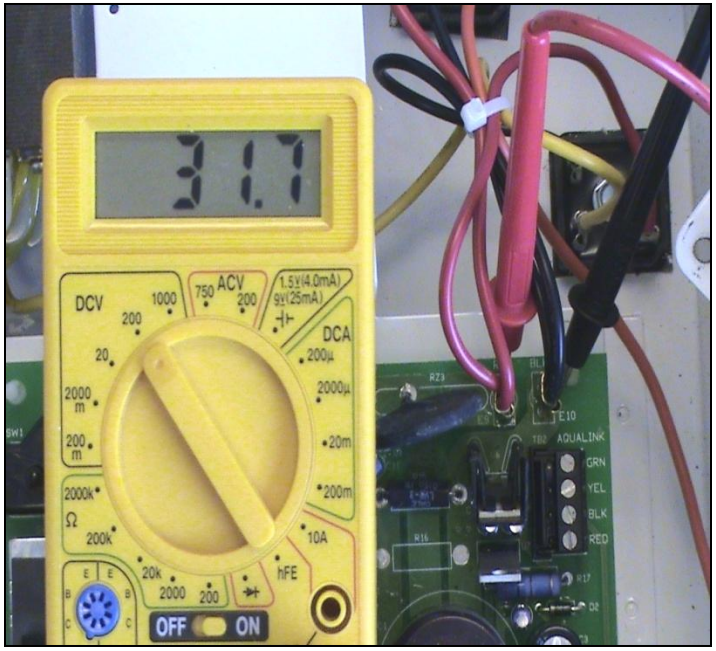


Replace fuse if blown. If fuse OK, go to step T.

Check System Light On
Chlorinator Off - Low Volts

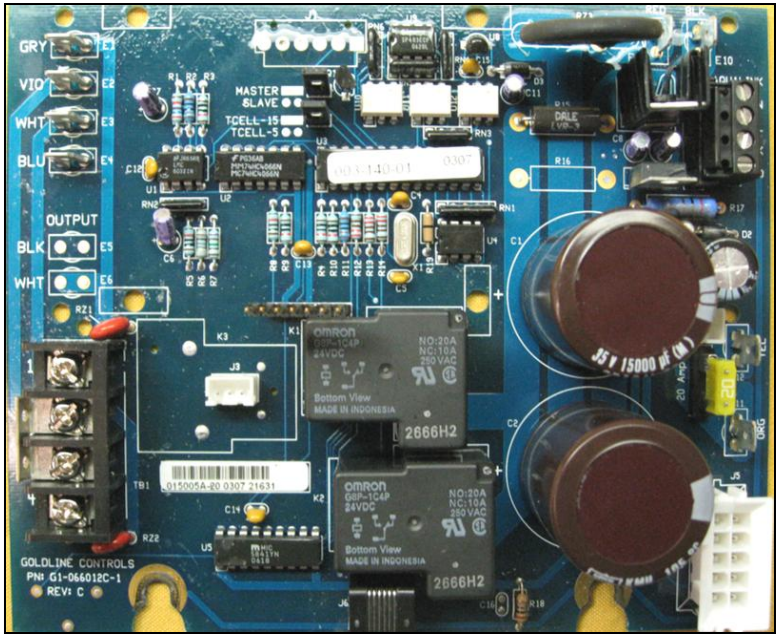
Verify 18-33 VDC between
black & red wires on main board

Step T



If no/low voltage replace rectifiers.
If voltage OK, go to step U.

Step U



Visually inspect main PCB board for any damaged or burnt components. If damaged or burned, replace the main PCB.